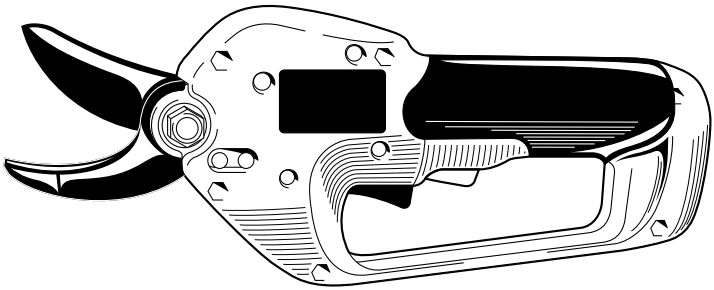
Battery-Powered Pruning Shears

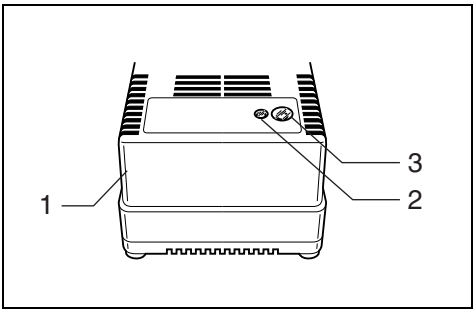
4604D



SPECIFICATIONS

Model	4604D
Max. cutting capacity	30 mm in diameter
Overall length	286 mm
Rated voltage	D.C. 24 V
Net weight	
Shears	1.0 kg
Controller C4600	0.3 kg
Battery 4600	2.0 kg
Charging time	Approx. 1 hr.

- Due to our continuing program of research and development, the specifications herein are subject to change without notice.
- Specifications and battery cartridge may differ from country to country.
- Weight, with battery cartridge according to EPTA-Procedure 01/2003



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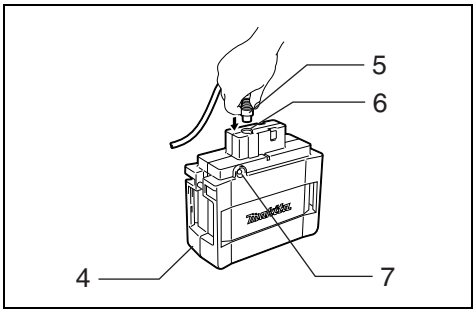

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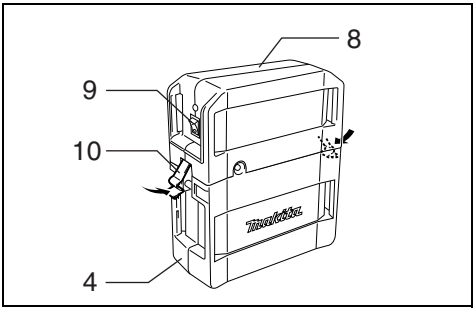

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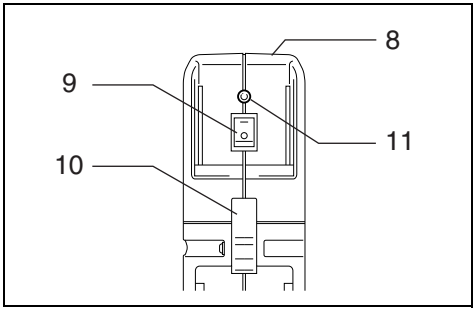

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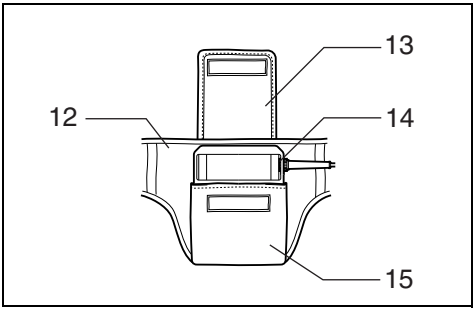

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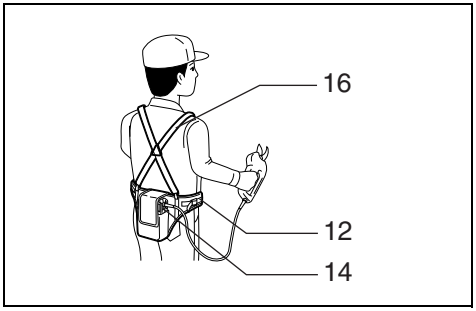

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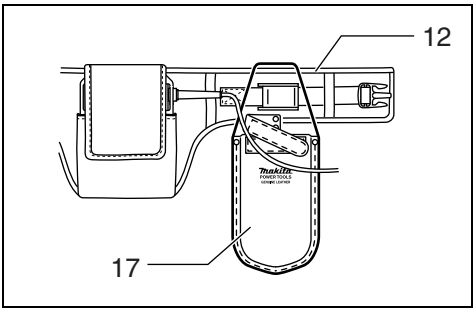

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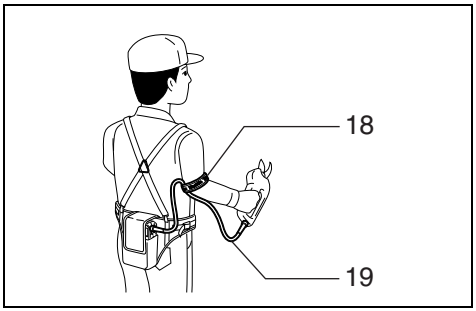

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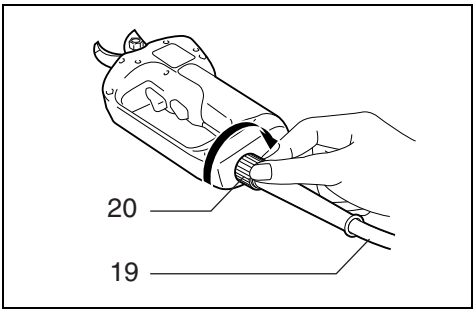

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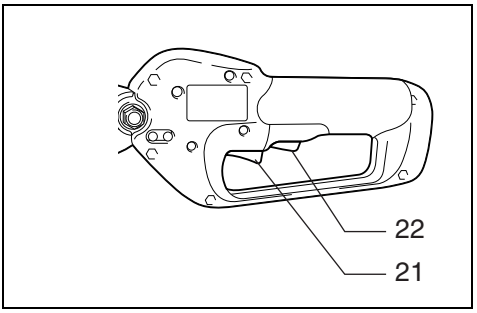

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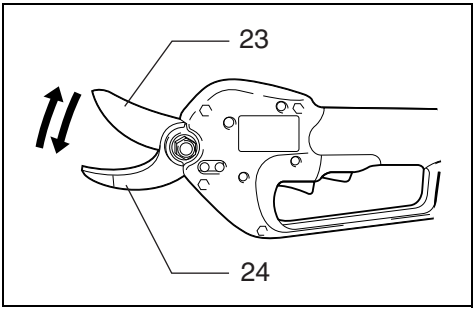

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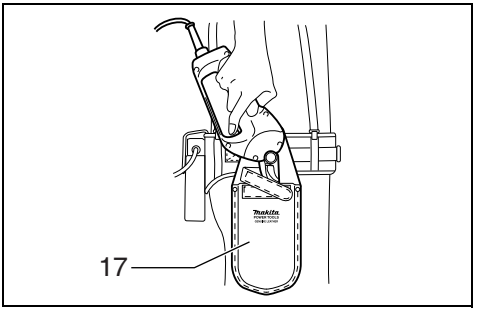

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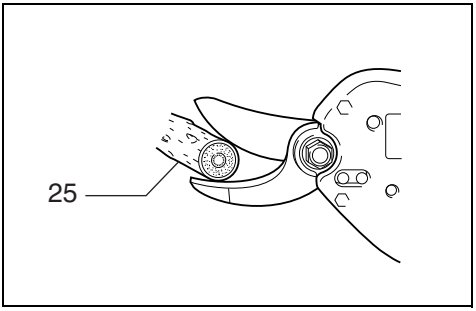

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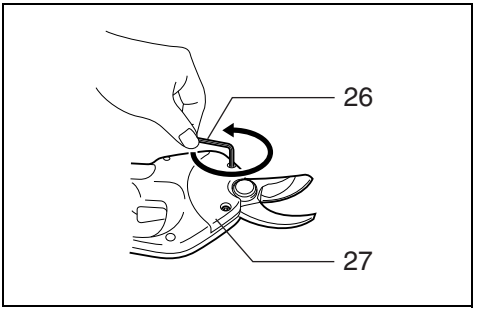

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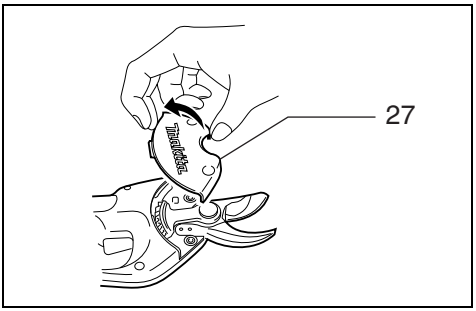

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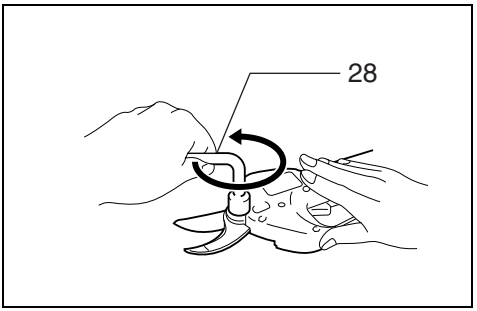

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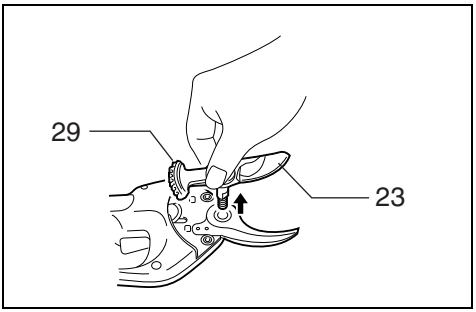

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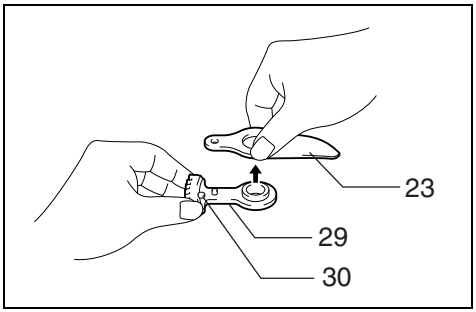

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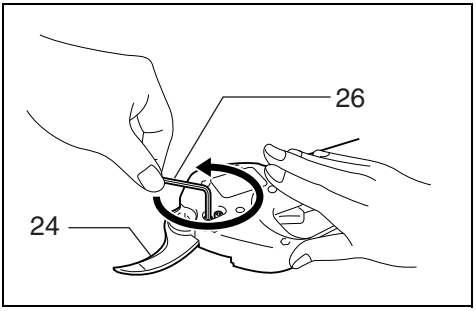

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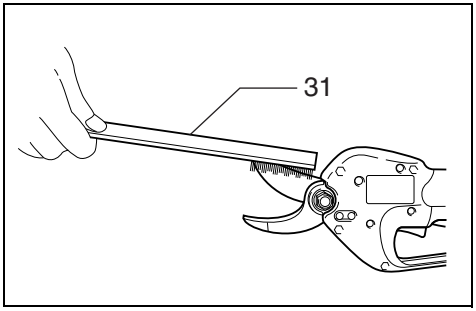

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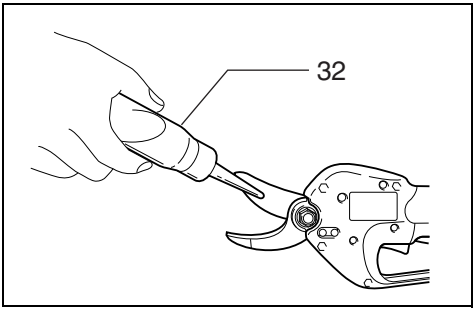

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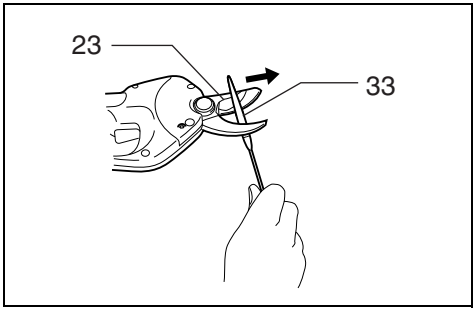

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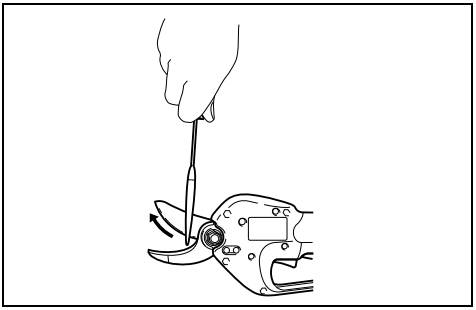

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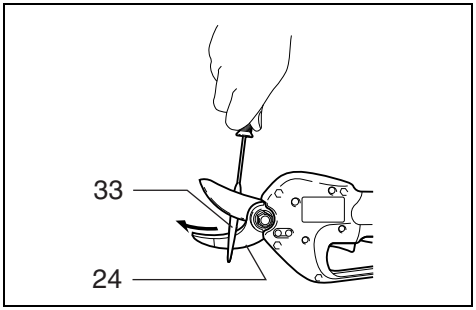

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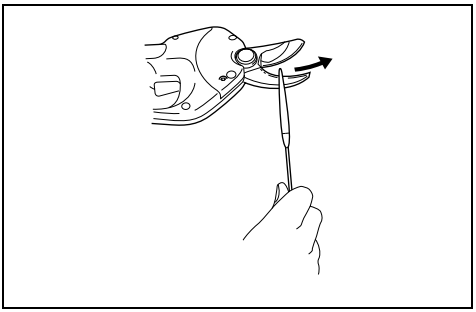

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END004-4

Symbols

The following show the symbols used for the equipment. Be sure that you understand their meaning before use.

- Read instruction manual.

- Only for EU countries
  Do not dispose of electric equipment or battery pack together with household waste material!
  In observance of European Directive 2002/96/EC on waste electric and electronic equipment, 2006/66/EC on batteries and accumulators and waste batteries and accumulators and their implementation in accordance with national laws, electric equipment and battery pack that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

Explanation of general view

1 Charger DC4600
2 Charging light
3 Start button
4 Battery 4600
5 Charging plug
6 Charging connector
7 Restart button
8 Controller C4600
9 Switch
10 Buckle
11 Pilot lamp
12 Waist belt
13 Pocket lid
14 Controller connector
15 Waist belt pocket
16 Suspenders
17 Holster
18 Arm band
19 Connection cord
20 Female plug
21 Switch trigger
22 Lock-off lever
23 Upper shear blade
24 Lower shear blade
25 Branch
26 Hex wrench
27 Blade cover
28 Socket wrench
29 Blade holder
30 Magnet
31 Brush
32 Machine oil
33 Diamond file

SAFETY INSTRUCTIONS

WARNING! When using battery operated tools basic safety precautions, including the following, should be followed to reduce the risk of fire, leaking batteries and personal injury: Read these instructions before operating this product and save these instructions.

For safe operation:

1. **Keep work area clean**
   – Cluttered areas and benches invite injuries.
2. **Consider the work environment**
   – Do not expose the tool to rain. Keep work area well lit. Do not use tools in the presence of flammable liquids or gases.
3. **Keep children away**
   – Do not let visitors touch the tool. Keep visitors away from work area.
4. **Store batteries or idle tools**
   – When not in use, tools and batteries should be stored separately in a dry, high or locked up place, out of reach of children.
   – Ensure that battery terminals cannot be shorted by other metal parts such as screws, nails, etc.
5. **Do not force the tool**
   – It will do the job better and safer at the rate for which it was intended.
6. **Use the right tool**
   – Do not force small tools or attachments to do the job of a heavy duty tools. Do not use tools for purposes not intended.
7. **Dress properly**
   – Do not wear loose clothing or jewellery, they can be caught in moving parts. Non-skid footwear is recommended when working outdoors. Wear protecting hair covering to contain long hair.
8. **Use protective equipment**
   – Use safety glasses and if the cutting operation is dusty, a face or dust mask.
9. **Connect dust extraction equipment**
   – If devices are provided for the connection of dust extraction and collection ensure these are connected and properly used.
10. **Do not abuse the supply cord (if fitted)**
    – Never carry the tool by the cord or yank it to disconnect from the socket. Keep the cord away from heat, oil and sharp edges.
11. **Secure the work**
    – Use clamps or a vice to hold the work. It is safer than using your hand and it frees both hands to operate the tool.
12. **Do not over-reach**
    – Keep proper footing and balance at all times.
13. **Maintain tools with care**
    – Keep cutting tools sharp and clean for better and safer performance. Follow instructions for lubrication and changing accessories. Inspect tool cords periodically and if damaged have repaired by an authorized service facility.
14. **Disconnect tools**
    – Where the design permits, disconnect the tool from its battery pack when not in use, before servicing and when changing accessories such as blades, bits and cutters.
15. **Remove adjusting keys and wrenches**
    – Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
16. **Avoid unintentional starting**
    – Do not carry the tool with a finger on the switch.
17. **Stay alert**
    – Watch what you are doing. Use common sense. Do not operate the tool when you are tired.
18. **Check damaged parts**
    – Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, free running of moving parts, breakage of parts, mounting and any other condition that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service facility unless otherwise indicated in this instruction manual. Have defective switches replaced by an authorized service facility. Do not use the tool if the switch does not turn it on and off.
19. **Warning**
    – The use of any accessory or attachment, other than recommended in this instruction manual or the catalog, may present a risk of personal injury.
    – Ensure that the battery pack is correct for the tool.
    – Ensure that the outside surface of battery pack or tool is clean and dry before plugging into charger.

– Ensure that batteries are charged using the correct charger recommended by the manufacturer. Incorrect use may result in a risk of electric shock, overheating or leakage of corrosive liquid from the battery.

20. Have your tool repaired by a qualified person

– This tool is constructed in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

21. Disposal of battery

– Ensure battery is disposed of safety as instructed by the manufacturer.

IMPORTANT SAFETY INSTRUCTIONS FOR CHARGER & BATTERY

1. **SAVE THESE INSTRUCTIONS — This manual contains important safety and operating instructions for battery charger.**
2. **Before using battery charger, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.**
3. **CAUTION — To reduce risk of injury, charge only MAKITA type rechargeable batteries. Other types of batteries may burst causing personal injury and damage.**
4. **Do not expose charger to rain or snow.**
5. **Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.**
6. **To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.**
7. **Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.**
8. **Do not operate charger with damaged cord or plug — replace them immediately.**
9. **Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.**
10. **Do not disassemble charger or battery; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.**
11. **To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.**

ADDITIONAL SAFETY RULES FOR CHARGER & BATTERY

1. **Do not charge battery when it or air temperature is below 10°C (50°F) or above 40°C (104°F).**
2. **Do not charge or leave battery in a location exposed to direct sunlight.**
3. **Do not attempt to use a step-up transformer, an engine generator or DC power receptacle.**
4. **Do not allow anything to cover or clog the charger vents.**
5. **Do not short the battery:**
   (1) Do not touch the terminals with any conductive material.
   (2) Avoid storing battery in a container with other metal objects such as nails, coins, etc.
   (3) Do not expose battery to water or rain.

   A battery short can cause a large current flow, overheating, possible burns and even a breakdown.

   Always cover the battery terminals with the battery cover when the battery is not used.
6. **Do not incinerate the Battery even if it is severely damaged or is completely worn out. The battery can explode in a fire.**
7. **Be careful not to drop, shake or strike battery.**
8. **Do not charge inside a box or container of any kind. The battery must be placed in a well ventilated area during charging.**

ADDITIONAL SAFETY RULES FOR BATTERY-POWERED PRUNING SHEARS

1. **This tool is for pruning branches. Do not use it for any job except that for which it is intended.**
2. **Don't use the tool or perform battery charging operations in the rain.**
3. **Don't leave the tool in rain or wet locations.**
4. **Keep bystanders well away from your work area.**
5. **Be careful not to catch foreign matter between the blades. If the blades are jammed with foreign matter, immediately switch off the tool and disconnect the battery from the tool. Then remove the foreign matter from the blades.**
6. **Never hold the branch you are pruning with your free hand. Keep your free hand away from the cutting area. Never touch the blades, they are very sharp and you may cut yourself.**
7. **Don't force the tool to make it cut. You could slip and injure yourself or cut something else unintentionally.**
8. **Avoid cutting electrical wires that may be hidden.**
9. **Always check the blades carefully before operation.**
10. **Handle the blades with extreme care to prevent cuts or injury from the blades.**
11. **Disconnect the battery from the tool after each use and before attempting to perform inspection or maintenance.**
12. **When not in use, always keep the tool in its holster.**

SAVE THESE INSTRUCTIONS.

OPERATING INSTRUCTIONS

Charging (Fig. 1 & 2)
Charge the battery 4600 with the Makita charger DC4600 before use. Plug the charger into the power receptacle and connect the charging plug into the charging connector on the battery. Press the start button (red) on the charger. The charging light will come on and charging will begin. When the charging light goes out after about one hour, the charging will be completed. If the charging light goes out within one minute after pressing the start button, the battery is dead. Replace it with a new one. After charging, disconnect the charging plug from the battery and power receptacle.

CAUTION:
- Remove the controller from the battery when charging.
- Do not keep the start button depressed with tape, etc. The circuit will not function properly and a malfunction of the charger may result.
- Use only Makita charger DC4600 to charge the battery 4600. The use of any other chargers may cause damage to the battery.
- When you charge a new battery or a battery which has not been used for a long period, it may not accept a full charge. This is a normal condition and does not indicate a problem. You can recharge the battery fully after discharging it completely a couple of times.

Overcurrent relay (Fig. 2)
The overcurrent relay is built into the battery to prevent a battery short-circuit. When the overcurrent relay actuates, the battery cannot be used. Press the restart button on the battery to use it again. If the overcurrent relay actuates frequently, there may be something wrong with the battery, charger, controller or shears themselves. Send them to your dealer or a Makita Service Center to have them inspected and/or repaired.

Installing controller on battery (Fig. 3 & 4)
First, make sure that the controller is switched off. Install the controller on the battery and fasten it with the buckles.

Connecting connection cord to controller
Connect the male plug of the connection cord to the controller connector and turn the screw clockwise to secure the male plug in place.

Putting battery into waist belt pocket (Fig. 5 & 6)
After installing the controller on the battery, put the battery with the controller into your waist belt pocket so that the controller connector will point toward your hand with which you operate the shears. Then cover the battery with the pocket lid to keep them from accidentally falling out of your pocket during operation.

Wearing waist belt (Fig. 6)
Attach a pair of suspenders on the waist belt. Wear the waist belt and adjust the lengh of suspenders and waist belt so that the battery will be positioned on your back at waist height.

Installing holster (Fig. 7)
Install the holster on the waist belt as shown in **Fig. 7**. It should be positioned on the side where your hand operates the shears.

Wearing arm band (Fig. 8)
Attach the arm band to your arm. When wearing it, slip the connection cord through the arm band as shown in **Fig. 8** to keep it out of the way.

Connecting connection cord to shears (Fig. 9)
Connect the female plug of the connection cord to the shear connector and turn the screw clockwise to secure the female plug in place.

NOTE:
- If you connect or disconnect the connection cord with the controller switched on, the pilot lamp will blink red and green alternately. When this occurs, the shears will not start even if you pull the switch trigger. Switch off the controller and then switch it on again to start the shears. **(Fig. 4)**

Switch action

CAUTION:
- Before connecting the battery to the shears, always check to see that the switch trigger actuates properly and returns to the “OFF” position when released.
- Do not pull the switch trigger without depressing the lock-off lever. It can cause switch breakage.

Switch on the controller by pressing the upper (I) side of the switch. The pilot lamp will start to blink green. Then pull the switch trigger and release it once. The upper shear blade will start to move up as soon as you release the switch trigger and will stop at the highest (wide open) position. In case that the upper shear blade has already opened, it will keep that position with the first trigger operation. The pilot lamp will remain green continuously. From the next trigger operation, you can cut branches. **(Fig. 4)**

To prevent the switch trigger from being accidentally pulled, a lock-off lever is provided. To start the shears, depress the lock-off lever and pull the switch trigger. To stop the shears, release the switch trigger. **(Fig. 10)**
When the switch trigger is pulled and held, the upper shear blade will move down and stop at the closed position. When the switch trigger is released, the upper shear blade will move up and stop at the highest (wide open) position. **(Fig. 11)**

Putting shears in holster (Fig. 12)
Switch off the controller by pressing the lower (O) side of the switch while keeping the switch trigger pulled. The upper shear blade will stop at the closed position. Put the shears in the holster with the upper shear blade at the closed position.

NOTE:
- Fasten the tool with holster belt.

Pruning operation (Fig. 13)

CAUTION:
- Never operate the shears in an awkward posture. This may cause a serious injury.
- Never hold the branch you are pruning with your free hand. Keep your free hand away from the cutting area. The blades are very sharp and you may cut yourself.

Cut branches one by one as shown in **Fig. 13**. The maximum thickness of branches which can be cut with these shears is about 30 mm. Maintain your proper footing and balance at all times.

After use, switch off the controller and disconnect the connection cord from the shears and the controller. Store the shears in dry, high or locked-up place – out of reach of children.

Overload protecting mechanism

Both the shears and the controller are equipped with an overload protecting mechanism. If the motor is locked for more than three seconds, this mechanism will actuate to stop the shears. Also, the pilot lamp on the controller will start to blink red and green alternately. To resume operation, switch off the controller by pressing the lower (O) side of the switch, then switch it on again.

NOTE:

- Do not operate the shears in such a way that this mechanism actuates frequently. The motor may be damaged.

Pilot lamp on controller (Fig. 4)

The pilot lamp will start to blink or remain green when the controller is switched on (the upper (I) side of the switch is pressed). If the pilot lamp indicates the following conditions, proceed as follows.

1. If the pilot lamp blinks red and green alternately, the overload protecting mechanism has been actuated or the connection cord is not firmly connected. Switch off the controller and do the following:
   a) If the motor is locked for more than three seconds, just switch on the controller.
   b) If the connection cord is not connected firmly, connect the connection cord firmly and then switch on the controller.
2. If the pilot lamp blinks red, the inside of the controller is too hot. Switch off the controller and wait for a while to cool it down. Then switch it on.
3. If the pilot lamp remains red continuously, the battery voltage is too low. Charge the battery.
4. If the pilot lamp is neither green or red:
   a) The battery is completely discharged. Charge the battery.
   b) The overcurrent relay has actuated. Press the restart button.

If the pilot lamp does not start to blink green even after you perform the above procedures, there is something wrong with the shears, connection cord, controller or battery. Switch off the controller and disconnect the connection cord from the shears and the controller. Remove the controller from the battery. Send the shears, connection cord, controller and battery to your dealer or a Makita Service Center to have them inspected and/or repaired.

Replacing shear blades

CAUTION:

- Always be sure that the controller is switched off and the connection cord is disconnected from the shears.

The shear blades can be replaced irrespective of the upper shear blade position.
Use the hex wrench provided to remove the two hex socket head bolts which secure the blade cover. **(Fig. 14)**
Remove the blade cover. **(Fig. 15)**
Use the socket wrench provided to remove the hex lock nut. The flat washer will come off together with the hex lock nut. **(Fig. 16)**
Remove the round head bolt, blade holder and upper shear blade. **(Fig. 17)**
Remove the upper shear blade from the blade holder. Be careful not to allow any foreign matter to attach to the magnet on the blade holder and do not damage it. **(Fig. 18)**
Use the hex wrench provided to remove the two hex socket head bolts which secure the lower shear blade. Then remove the lower shear blade. **(Fig. 19)**
To install the shear blades, follow the removal procedures in reverse. Do not remove grease around the gear.

MAINTENANCE

CAUTION:

- Always be sure that the controller is switched off and the connection cord is disconected from the shears.
- Never use gasoline, benzine, thinner, alcohol or the like. Discoloration, deformation or cracks may result.

Blade maintenance (Fig. 20 & 21)

NOTE:

- Before and after operation, check the shear blades carefully.

After operation, clean off the blades with a stiff brush. Then wipe the blades with a cloth and coat them with machine oil.

CAUTION:

- Failure to perform blade maintenance may cause excessive blade friction and shorten the operating time per battery charge.

Sharpening blades

Upper shear blade

Apply the flat surface of the diamond file to the blade edge. Push the diamond file in the direction of the arrow to sharpen along the entire blade edge. Maintain the same flat contact with the file consistently along the entire blade edge. **(Fig. 22)**
Apply the flat surface of the diamond file lightly to the reverse side of the blade. Move the diamond file in the direction of the arrow to remove burrs. **(Fig. 23)**

Lower shear blade

Apply the round surface of the diamond file to the blade edge. Push the diamond file in the direction of the arrow to sharpen along the entire blade edge. **(Fig. 24)**
Apply the flat surface of the diamond file lightly to the opposite side of the blade. Move the diamond file in the direction of the arrow to remove burrs. **(Fig. 25)**

To maintain product safety and reliability, repairs, maintenance or adjustment should be carried out by Makita Authorized Service Center.

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